

**REMARKS**

By the above amendments, claim 1 is revised, claims 5 and 20 are canceled, and new claim 23 is added to place this application in condition for allowance. Currently, claims 1-4, 6, 7 and 18, 19, and 21-23 are before the Examiner for consideration on their merits.

In review, claim 1 has been revised to include a surface roughening step. Support for this change may be found on page 16, line 16, to page 9, line 25. Further, the lubricant powder of claim 5 has been incorporated into claim 1. Because of the inclusion of claim 5 into claim 1, claim 20 is also canceled. Lastly, the temperature range of the first stage heating is limited to 140 °C. Support for the 140 °C temperature limitation is found on page 26, line 6.

New claim 23 recites the resins disclosed on page 9, beginning at line 28 and continuing to line 2 of page 10, which are part of the applied coating.

While this Amendment is made after a final rejection, it is respectfully submitted that it clearly overcomes the rejection of record, and does not raise any new issues requiring further search or consideration. The limitations regarding the lubricant coating were already before the Examiner in dependent claim 5. The issue of surface roughness of the pipe prior to receiving the coating was defined in the dependent claims in terms of surface roughness. The addition of new claim 23 is made if the Examiner still does not believe that claim 1 is commensurate in scope with the claims

and this does not raise a new issue requiring search or reconsideration.

Thus, the claim is proper for entry.

In light of the changes to claim 1, it is submitted that either the prior art does not establish a *prima facie* case of obviousness thereagainst or the discovery of improvements in galling resistance when coating oil well pipes is one that is unexpected and sufficient to rebut any contention of obviousness.

In the rejection, the Examiner continues to assert that Tsuru obviates the invention. A primary basis for this allegation that Tsuru teaches the invention is the teaching of a heating step of 150-270 °C. Here, the Examiner contended that this range overlapped the ranges of claim 1, and with this overlap, the only difference was one of using more than one stage for heating. On the assumption that claim 1 reads on a heating step of 150 °C, the Examiner concluded that specifying a multistage heating for the process of Tsuru was obvious.

It is now submitted that the range of heating for the two stage heating of claim 1 does not overlap with that of Tsuru. Therefore, the Examiner cannot view the issue of obviousness as merely using multiple heating stages in the process of Tsuru. Instead, the issue of obviousness involves whether one of skill in the art would employ a temperature range of 70 to 140 °C as a first stage heating step in the process of Tsuru.

Applicant contends that there is no reason why such a change would be made to the process of Tsuru. Tsuru clearly teaches a lower limit of 150

°C for heating, and identifies 180 °C as a preferred lower limit, see col. 21, lines 10-19. Moreover, the lower limit of Tsuru is not sufficiently close to the claimed upper limit that the Examiner could contend that their proximity means that they are essentially the same. Given the teachings of Tsuru, Applicant contends that there is no basis to conclude that it would be obvious to employ a first stage heating step using a range of 70-140 °C as claimed. To draw such a conclusion without any basis can only be the hindsight reconstruction of the prior art in light of Applicant's disclosure.

Lacking a reason to modify Tsuru so as to teach the steps of claim 1, Tsuru cannot be relied upon under 35 U.S.C. § 103(a) to reject claim 1, and the current rejection must be withdrawn.

Applicant also notes that Tsuru teaches that the heating step is a function of the properties of the organic resin binder in the solid lubricant. In claim 1, the first stage heating is intended for drying of the applied coating, not for forming the solid lubricant coating. Thus, even if the Examiner were to interpret Tsuru to teach a temperature range that is different than that disclosed, why practice the claimed first stage heating which is intended for drying? Again, there is no reason to make such a change to Tsuru, and to conclude that claim 1 is obvious in the face of the teachings of Tsuru is hindsight.

As previously argued, a ramp up of the heating of Tsuru is not the same as the claimed two stage heating of claim 1. The heating step of Tsuru

is clearly disclosed as in the range of 150-270 °C, which is consistent with the second stage heating of claim 1. However, to conclude that a ramp up in temperature is the same as the claimed staged heating ignores the manner in which Tsuru heats the coated pipe. It is submitted that construing the first stage heating of claim 1 as the same as a ramping up of the pipe to its intended heating range is not a reasonable interpretation of the claim, and this interpretation cannot be used to support a rejection under 35 U.S.C. § 103(a).

Applicants again wish to make the argument that the discovery associated with the invention in terms of improved galling resistance is one that is unexpected in the field of oil well pipes and capable of rebutting any allegation of obviousness.

As explained on pages 2-4 of the application, it was common to use a compound grease to coat the threads of oil well pipe prior to tightening. While the compound grease was effective in maintaining the seal of the connected pipes and did not cause galling, its use posed environmental problems. Because of the environmental problems associated with the use of the compound grease, solid lubricant coatings were developed. While these coatings solved the environmental problems caused by the use of compound greases, they provided less than adequate galling resistance.

The problems related to a lack of galling resistance were magnified by the development of high temperature oil well operations. In these

operations, the galling resistance and gas tightness were even more critical properties and oil well pipes to be used in these high temperature operations had to pass a sealing test at high temperature. The state of the art oil well pipes using solid lubricant coatings were having difficulty in meeting this test, and this spurred the development of oil well pipes processed according to the invention. The inventive oil well pipes were found to meet these tests by providing improved galling resistance and this was a significant advancement over the prior art oil well pipes.

This advancement is related to the processing of claim 1, and the two stage heating step described therein.

Applicants again point to the comparative evidence of the specification and the showing that practicing the two stage heating on a roughened surface and using the claimed lubricant coating does produce improvements in galling resistance. In the prior response, pages 7 and 8, Applicants explained that the comparative evidence clearly shows that practicing the invention as claimed results in improved galling, and processes that did not employ the claimed two stage heating or two stage heating processes that did not abide by the claim temperature limitations **did not** produce the desired galling resistance.

As importantly, Tsuru teaches nothing regarding the problems of galling resistance or a possible solution thereto and Tsuru cannot lead one to conclude that the findings of the inventors are somehow expected.

Also, the citation to Emch does not change the fact that the invention produces unexpected results. While Emch does teach a two stage heating process, it is totally unrelated to the process of the Applicants or Tsuru and it does not add anything to the analysis of obviousness in the instant situation. Emch uses a two stage heating for the basecoat not the basecoat and topcoat, and this is not the same as the process of either Tsuru or that claimed. As pointed out above, Applicants are not claiming to be the first to employ two stage heating. Instead, Applicants are employing a particular two stage heating in the context of roughened oil well pipes that are coated with a particular class of lubricants. Thus, Emch does not add anything to the rejection, and particularly to the unexpected improvements in galling resistance as a result of the claimed processing.

In response to the notation that the unexpected results are not commensurate with the scope of the claims, claim 1 has been revised to define a surface roughening step, and limit the type of solid lubricant coating used as part of the two stage heating step. Therefore, it is contended that any objections that the claims were overly broad when compared to the comparative testing performed in the specification have been overcome.

If the Examiner were still to object to the scope of claim 1 in terms of the comparative evidence, particularly with respect to the resin aspect of the claim, claim 23 would allay any such concerns. Since claim 23 defines the

resins used as part of the coating, consideration of claim 23 would mandate that at least this dependent claim contains allowable subject matter.

In summary, the arguments set forth above demonstrate that either Tsuru does not render claim 1 obvious and that the rejection based on this prior art reference must be withdrawn or that any allegation of obviousness is overcome by the unexpected discovery that practicing the process of claim 1 produces significantly improved galling resistance in oil well pipes.

Accordingly, the Examiner is respectfully requested to examine this application in light of this response and pass all pending claims onto issuance.

If an interview with Applicant's attorney would expedite allowance of this application, the Examiner is invited to telephone the undersigned at 202-835-1753.

The above constitutes a complete response to all issues raised in the Office Action dated July 13, 2006.

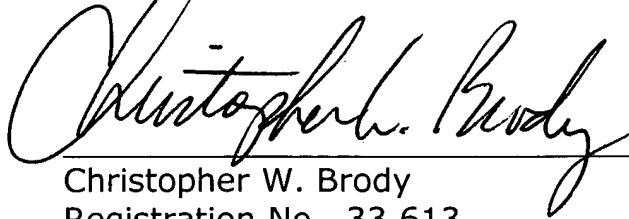
Again, reconsideration and allowance of this application is respectfully requested.

Applicant petitions for a two-month extension of time. A check covering the petition fee of \$450.00 is attached.

Application No.: 10/829,292

However, please charge any fee deficiency or credit any overpayment  
to Deposit Account No. 50-1088.

Respectfully submitted,  
CLARK & BRODY

A handwritten signature in black ink, appearing to read "Christopher W. Brody", written over a horizontal line.

Christopher W. Brody  
Registration No. 33,613

**Customer No. 22902**  
1090 Vermont Ave. NW  
Suite 250  
Washington, DC 20005  
Telephone: 202-835-1111  
Facsimile: 202-835-1755

Docket No.: 12014-0017DV  
Date: December 12, 2006